



# Department of Defense

## DIRECTIVE

**NUMBER 5000.59**

August 8, 2007

Incorporating Change 1, Effective October 15, 2018

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USD(R&E)

**SUBJECT:** DoD Modeling and Simulation (M&S) Management

- References:**
- (a) DoD Directive 5000.59, "DoD Modeling and Simulation (M&S) Management," January 4, 1994 (hereby canceled)
  - (b) Program Decision Memorandum (PDM), December 14, 2005<sup>1</sup>
  - (c) DoD Directive 5105.18, "DoD Committee Management Program," February 8, 1999
  - (d) DoD 5000.59-M, "DoD Modeling and Simulation (M&S) Glossary," January 1998
  - (e) through (j), see Enclosure 1

### 1. REISSUANCE AND PURPOSE

This Directive:

- 1.1. Reissues Reference (a) to update policy and responsibilities for DoD M&S management, per Reference (b).
- 1.2. Establishes the DoD M&S Steering Committee (M&S SC) under the provisions of Reference (c).
- 1.3. Authorizes the development of DoD Publications as needed and continues to authorize Reference (d), consistent with DoD 5025.1-M (Reference (e)).

### 2. APPLICABILITY

2.1. This Directive applies to the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense

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<sup>1</sup> Available from the Director, Program Analysis and Evaluation

Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as the “DoD Components”).

2.2. This Directive applies to all M&S tools, data, and services developed, used, or managed by or on behalf of the DoD Components after the effective date of this Directive.

### 3. DEFINITIONS

Terms used in this Directive are defined in Reference (d), Joint Publication 1-02 (Reference (f)), DoD Directive 4630.05 (Reference (g)), and Enclosure 2.

### 4. POLICY

It is DoD policy that:

4.1. M&S is a key enabler of DoD activities.

4.2. M&S tools, data, and services shall be visible and accessible within and across the DoD Components.

4.3. M&S management shall develop plans, programs, procedures, issuances, and pursue common and cross-cutting M&S tools, data, and services to achieve DoD’s goals by: promoting visibility and accessibility of models and simulations; leading, guiding, and shepherding investments in M&S; assisting collaborative research, development, acquisition, and operation of models and simulations; maximizing commonality, reuse, interoperability, efficiencies and effectiveness of M&S, and supporting DoD Communities that are enabled by M&S.

4.4. Common and general-use M&S areas shall be assigned to specific DoD Components. A DoD Component so assigned shall be designated the "DoD M&S Coordination Agent" for that M&S area. The current existing M&S Executive Agents (MSEA), created under the previous version of Reference (a) and grandfathered by DoD Directive 5101.1 (Reference (h)), shall be transitioned to become M&S Coordination Agents; their MSEA status shall remain unchanged until that transition is complete.

### 5. RESPONSIBILITIES

5.1. The Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), in coordination with the Heads of the DoD Components, shall:

5.1.1. Provide a single focal point for the coordination of all matters related to DoD M&S.

5.1.2. Develop DoD issuances to manage M&S.

5.1.3. Establish, manage the membership of, and chair (delegation authorized) the M&S SC to govern, guide, and oversee matters relating to M&S via an executive-level DoD committee (Reference (c)) comprised of Senior Executive Service, flag or general officers of the military, or officials of equivalent rank and precedence with initial membership from the USD(AT&L); the Under Secretary of Defense for Policy; the Under Secretary of Defense for Personnel and Readiness (USD(P&R)); the Director of Program Analysis and Evaluation (DPA&E); the Director of Operational Test and Evaluation (DOT&E); the Military Secretaries; the Chairman of the Joint Chiefs of Staff; and the Commander of U.S. Joint Forces Command. The M&S SC shall:

5.1.3.1. Advise and assist the USD(AT&L) in all matters related to M&S.

5.1.3.2. Oversee the development of DoD's M&S vision to guide the M&S activities of the DoD Components and DoD Communities.

5.1.3.3. Provide oversight and strategic governance of DoD M&S capabilities and resources.

5.1.3.4. Develop, submit for USD(AT&L) approval, and implement the M&S Common and Cross-Cutting business plan.

5.1.3.5. Oversee the development and implementation of policies, plans, procedures, and DoD issuances to manage M&S and the implementation of best practices of how models and simulations are effectively acquired, developed, managed, and used by DoD Components (e.g., verification, validation, and accreditation; standards, and protocols).

5.1.3.6. Recommend the designation of DoD M&S Coordination Agents.

5.1.4. Designate DoD M&S Coordination Agents. Define policies and responsibilities of M&S Coordination Agents. Provide a transition path and timeline for the existing M&S Executive Agents to become M&S Coordination Agents.

5.1.5. Represent the DoD Acquisition Community on the M&S SC.

5.1.6. Represent, in consultation with DOT&E, the DoD Testing Community on the M&S SC.

5.2. The USD(P&R) shall represent the DoD Training Community on the M&S SC.

5.3. The DPA&E shall represent the DoD Analytical Community on the M&S SC.

5.4. The DOT&E shall, in consultation with USD(AT&L), represent the DoD Testing Community on the M&S SC.

5.5. The Chairman of the Joint Chiefs of Staff shall:

5.5.1. Provide an M&S SC member to represent the Combatant Commanders, except as specified in paragraph 5.6. of this Directive.

5.5.2. Provide a second M&S SC member to represent the DoD Planning Community on the M&S SC.

5.6. The Commander of U.S. Joint Forces Command shall represent the Experimentation Community on the M&S SC.

5.7. The Heads of the DoD Components shall:

5.7.1. Implement management processes that provide visibility and access to Component-level M&S programs and activities.

5.7.2. Develop, manage, and provide Component representation data, and support the development of tools and services for DoD Community Specified Models and Simulations.

5.7.3. Maximize the commonality, reuse, interoperability, efficiencies, and effectiveness of Component-specific M&S data, tools, and services.

5.7.4. Appoint a representative to the M&S SC as prescribed in paragraph 5.1.3. of this Directive. The Secretary of the Navy shall appoint two representatives, one from the Marine Corps and one from the Navy.

5.7.5. When designated as DoD M&S Coordination Agent, coordinate all prescribed aspects of DoD M&S management in their respective M&S areas. In coordination with the Components, develop, fund, and implement a plan to accomplish M&S Coordination Agent responsibilities.

## 6. INFORMATION REQUIREMENTS

The data collection activities described in this Directive are exempt from licensing, in accordance with subparagraphs C4.4.3., and C4.4.4. of DoD 8910.1-M (Reference (i)).

7. SUMMARY OF CHANGE 1. This change reassigns the office of primary responsibility for this Directive to the Under Secretary of Defense for Research and Engineering in accordance with the July 13, 2018 Deputy Secretary of Defense Memorandum (Reference (j)).

8. EFFECTIVE DATE

This Directive is effective immediately.



Gordon England

Enclosures – 2

E1. References, continued

E2. Definitions

E1. ENCLOSURE 1

REFERENCES, continued

- (e) DoD 5025.1-M, "DoD Directives System Procedures," March 5, 2003
- (f) Joint Publication 1-02, "Department of Defense Dictionary of Military and Associated Terms," 12 April 2001
- (g) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," May 5, 2004
- (h) DoD Directive 5101.1, "DoD Executive Agent," September 3, 2002
- (i) DoD 8910.1-M, "Department of Defense Procedures for Management of Information Requirements," June 30, 1998
- (j) Deputy Secretary of Defense Memorandum, "Establishment of the Office of the Under Secretary of Defense for Research and Engineering and the Office of the Under Secretary of Defense for Acquisition and Sustainment," July 13, 2018

## E2. ENCLOSURE 2

### DEFINITIONS

E2.1. Accreditation. As defined in Reference (d).

E2.2. Commonality. As defined in Reference (f).

E2.3. DoD Community. For the purpose of this Directive, a DoD activity area, enabled by M&S, that has an established executive-level management structure. Examples of such activities that meet these criteria include acquisition, training, and analysis.

E2.4. DoD Community Specified Models and Simulations. For the purpose of this Directive, models and simulations designated by a Community to focus Community management of M&S and to limit the scope of the Components' responsibility to develop, manage, and provide Component data, and support the development of tools and services.

E2.5. Interoperability. As defined in Reference (g).

E2.6. Information Technology (IT). As defined in Reference (g).

E2.7. Modeling and Simulation (M&S). The discipline that comprises the development and/or use of models and simulations. M&S is highly dependent upon IT, see the definition of IT above.

E2.8. M&S Common and Cross-Cutting Business Plan. A DoD plan, created in coordination with the DoD Components and published under the authority of the USD(AT&L), to achieve the vision, goals, and objectives for common and cross-cutting M&S within the Department of Defense. It shall also include an assessment of current M&S capabilities and gaps, a status report on M&S efforts under development, and a road map that delineates the management, investment, and technical strategies required to achieve the DoD M&S vision, goals, objectives.

E2.9. M&S Coordination Agent. A DoD Component designated by USD(AT&L) to coordinate prescribed aspects of DoD M&S for a designated M&S area. A DoD M&S Coordination Agent is not an Executive Agent as defined by Reference (h).

E2.10. M&S Data. Data used to develop models or simulations, data used as input to models and simulations, and data produced by models and simulations.

E2.11. M&S Executive Agent (MSEA). A DoD Component designated by USD(AT&L) to coordinate all aspects of DoD M&S for a designated M&S area.. These MSEAs are grandfathered by Reference (h) until transitioned to M&S Coordination Agents. There are five such MSEAs: Air Force for Air and Space Environment; Navy for Ocean Environment; National Geospatial-Intelligence Agency for Terrain Environment (now under the authority, direction, and control of Under Secretary of Defense for Intelligence (USD(I))); Defense Intelligence Agency for Threat Forces and Intelligence Processes (now under the authority,

direction, and control of USD(I)); and Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs (ATSD(NCB)) for Chemical, Biological, Radiation, and Nuclear Defense M&S.

E2.12. M&S Services. An activity that enhances the ability to effectively and efficiently use M&S to accomplish a mission.

E2.13. M&S Tools. Software that implements a model or simulation or an adjunct tool, i.e., software and/or hardware that is either used to provide part of a simulation environment (e.g, to manage the execution of the environment) or to transform and manage data used by or produced by a model or simulation. Adjunct tools are differentiated from simulation software in that they do not provide a virtual or constructive representation as part of a simulation environment.

E2.14. Model. As defined in Reference (d))

E2.15 Reuse. The practice of using again, in whole or part, existing M&S tools, data, or services.

E2.16. Simulation. For the purpose of this Directive, a method for implementing a model over time.

E2.17. Validation. For the purpose of this Directive, the process of determining the degree to which a model is an accurate representation of the real-world from the perspective of the intended uses of the model.

E2.18. Verification. For the purpose of this Directive, the process of determining that a model implementation accurately represents the developer's conceptual description and specifications.